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ANIMAL LIFE IN BORNEO.

By W. B. PRYER, C.M.Z.S.

A FEW remarks about the animals to be found in the neighbourhood of Elopura, Sandakan Bay, may perhaps be acceptable to naturalists. Some months ago I was requested by the Secretary of the Zoological Society to try and secure for him a few of the common *Gymnura* (*G. Rafflesii*).^{*} The Sooloos of these parts are not clever trappers, and it was no use asking them; but there was an adept at hand, who had been employed by Mr. Low for a similar purpose, and on application to him this nobleman in reduced circumstances undertook to trap for me, and the result was a perfect deluge of birds and animals of all kinds—Argus Pheasants, Partridges, *Gymnuras*, *Tingalums*, *Musangs*, and other things—the market, in fact, was overstocked.

The trap used is a cruel one: a loop arranged at the end of a stout bent sapling, so that when an animal is noosed it is suddenly jerked, usually by one leg, upside down in the air, and held suspended until the trapper comes round, which is generally not

^{*} This curious animal, the native name for which is *Bulan*, may be regarded as a connecting link between the Hedgehogs and Shrews, resembling a Hedgehog with flexible hairs, and having an elongated shrew-like head, and a long, almost bare tail like that of a rat. It was originally discovered in Sumatra by Sir Stamford Raffles, who described it as a Civet under the name *Viverra gymnura*, and besides inhabiting Borneo is also found in the neighbouring island of Sarawak. It is about two feet in length, of which one half is tail.—ED.

till some hours later, when its leg in most cases is found to be broken. This sort of thing does not conduce to longevity, and accordingly, after spending some fourteen or fifteen dollars, I had to leave off buying.

Amongst the victims there were brought to me some ten or a dozen *Gymnuras*. They are stubborn, pig-like animals, with a strong rancid smell, and their most noticeable peculiarity is that if you approach close to them they jump into a threatening attitude, with jaws wide open, and so remain for a long time. On putting a bit of stick near it is seized with one sharp snap, the imprint of the teeth being left visible. Those brought me here were of a pure milk-white; others that were obtained about fifteen miles away had all the longer hairs tipped with black.*

There is very little animal life to be *seen* in the tropical forest round this place. I may take half-a-dozen long walks through the forest without seeing a single creature, even though it be but a Monkey or a Squirrel; yet there are plenty of animals if they would only show, but they are nearly all nocturnal, and where they hide in the day it is hard to say. This I could understand in a country where any species of the flesh-feeding *Felidæ* occur, but here there is nothing more formidable than a Civet or a Musang. That animal life abounds, however, is plain; one has only to visit the top of any small hill, and a regular path is found to be worn along the ridge of it, entirely made by the numbers of small mammals that continually wander about at night.

Of the wild animals of this particular district (spoken of by old travellers as "*Felicia*") the most noticeable is the Elephant. That it should occur in Borneo is only what might be expected, but why it should be confined to this part of the island is strange. To the south of the Bay of Sandakan vast herds roam the forest. The proportion of tuskers to the others is about one in four or five. The natives of these parts are not great hunters, but they sometimes find it necessary to turn out in defence of their crops and kill one or two.

Rhinoceroses are not infrequent; the tracks of one or two may usually be seen in the course of a walk in the low districts. I have

* The general colour of Sumatran specimens is blackish grey, with the head and neck much paler, inclining, in fact, to white, and with a black streak over each eye. Those procured in Sarawak are said to resemble the Bornean type.—ED.

sent home three or four skulls, which have been identified as those of *R. sumatrensis*. The natives declare a three-horned species exists, and I have seen a skull which I should not like to say was *not* a three-horned one, the third horn, however, being very small.

Sportsmen may be interested to learn that a fine large species of Red-deer, probably a Sambur, is common enough in the forest,* besides one or two species of the genus *Bos*. I have seen a herd of at least fifty wild cattle at once, and was confronted by the patriarch, an enormous bull with splendid horns, who looked at me, down a glade in the forest, and seemed much inclined to charge. Having seen his harem, however, safely out of danger, he trotted off after them. All the individuals in this herd were coal-black. The only species I have been able to identify with any certainty is *B. Banteng*,† Raffles; but I am nearly sure we have also common wild cattle, in all probability descendants of beasts turned loose by some of the early navigators who visited these parts.

Bears (*Ursus malayanus*) and a species of Roe-deer [quære, *Cervulus muntjac*?—ED.] are to be met with sometimes; Mouse-deer (*Tragulus javanicus*) are plentiful in places, but can hardly be dignified with the title of "big game"; while of wild pigs I believe I have made out four distinct species, one of which seems identical with the *Sus leucomystax* of North China, and another, like the wild cattle, appears to be of European origin.

Of other animals perhaps the most interesting that I have seen is a *Mydaus*, which is said not to have occurred at a lower elevation than 7000 feet.‡ Here, however, we get it at sea-level, and there are hardly any hills above a few hundred feet high within forty miles of us. The smell of this animal appears to me to have been somewhat overstated, although I must say that once

* Is this distinct from *Cervus equinus*, Cuv., found in Borneo, Sumatra, and Singapore; and is *equinus* distinct from *C. aristotelis*, Cuv.? Sir Victor Brooke refers to intermediate forms (skulls and antlers) which he has seen (Proc. Zool. Soc., 1878, p. 901).—ED.

† Better known as *Bos sondaicus*, an introduced species in Borneo. What the "common wild cattle" may be, if not *sondaicus*, remains to be ascertained.—ED.

‡ Of this genus *M. meliceps*, Cuv., is recorded from Sumatra and Java; *M. taxoides*, Blyth, from Assam and Aracan.—ED.

or twice when the dogs had been tackling one in the forest I have had to keep them out of the house for three weeks afterwards!

As it is said that *Galeopithecus* can alter its course of flight but in the smallest degree, I may mention that a very short time ago I saw one not only turn right round in its course, but, distinctly flapping its membranes, rise up a steep hill-side to the base of a tree some ten or twelve feet above the lowest point it had reached. I was within a very few yards of the tree at the time, so there could be no mistake in this observation.

Two or three species of *Tupaia* are, with the exception of Monkeys, the commonest animals in our forest; they, together with Squirrels, are spoken of by the natives under the common name of "Bassins" [or "Bangsrings."—Ed.]. One, the largest of all, is a very handsome animal, having particularly thick glossy fur and a remarkably bushy tail; the head also is by no means sharp, so that the resemblance to a large Squirrel is most complete. None of the species I have seen are able to curl their tails up their backs, squirrel fashion, as I notice one is made to do in a sketch in a certain book on Natural History. The leaps from tree to tree taken by these animals are something extraordinary to see.

We have no great number of reptiles here at Elopura, but, as with mammals, the species are varied. Snakes are rarely seen, and of these not one in ten is poisonous. In all my wanderings in the forest I have only come across two poisonous species. On one occasion I was pushing my way through some low bushes when I almost came face to face with a small green viper coiled on a branch about five feet from the ground; drawing back a yard, I struck about the middle of its coil with a sharp wood-knife I had in my hand, and it fell to the ground in a perfect little shower. The strength of the poison possessed by this species is very great. I one day took a kitten, and holding one of these vipers by the back of the neck, pressing it so as to open its mouth and project its poison-fangs, made just the slightest scratch on the kitten. With one bound she was out of my hands, and running about twenty yards fell over on her side motionless, and so remained for over a quarter of an hour when she began to recover, and at the end of two hours had quite recovered, and never seemed any the worse for it. All the poisonous Snakes here are extremely lazy, and the smaller species just referred to

are very good tempered. I have carried them about loosely myself, always taking care never to provoke them, however! I once saw a little boy pulling one about quite roughly, and, after satisfying myself that the teeth were not extracted, I destroyed it for fear of accident. I must say I do not quite regard snake-charming as some people do. Anyone who has ever kept a non-poisonous Snake knows that with a very little caution, and when the Snake has come to know him, it can be handled and even played with freely; and if non-poisonous, why not poisonous species as well?

The Chameleon found here has but two changes of colour—green and greyish brown; the latter is its natural colour apparently, while it more usually adopts the former. The change of hue is instantaneous. I caught one in my butterfly-net on one occasion; it had been green while in the bush when I struck at it, but on the moment it changed to greyish brown. On another occasion the change absolutely took place before my eyes. If hurt or damaged, however, they do not seem to have strength enough to alter the colour, but remain green, which may be taken as a sign that they will die. If on any tree trunk or other dark-coloured substance, very likely (though I am not sure) they adopt the greyish brown hue.*

Various species of Flying Lizard (*Draco*) are rather common; they usually go in couples, for what reasons I do not know, but whenever I see one fly across from one tree-trunk to another I remain still and in a quarter of a minute another is sure to follow; on two occasions I have seen three, so that I am inclined to think it is more for company than anything else. These lizards also seem to possess some slight power of changing their colour. I saw one whose body alone was eight or nine inches long; the inner part of the membrane was red, and as it glided through the air I really thought it was a good-sized bird.

There is a queer sort of frog here which occurs in my bath-room and apparently nowhere else; it turns from a colourless grey to a sort of brown; it is very thin, and can jump a

* According to Prof. Mivart ('Nature,' 11th August, 1881. p. 336) there are fifty known species of Chameleon. The species found in Borneo is presumably *C. vulgaris*, which occurs in Southern Spain, Northern and Southern Africa, Asia Minor, Arabia, Hindostan, and Ceylon. No other species has so extensive a range.—Ed.

preposterous distance; usually, however, it is quite still, and, flattening itself up against the wall, quietly remains there for a week together without moving. In jumping it extends its broad webbed feet so as to make its descent somewhat of a swoop.

The only other reptile I can think of, worthy of notice, is the Monitor Lizard, which grows to a very large size. I obtained one of eight feet. These brutes are very destructive to chickens, and hardly a day passes without a "hullabaloo" in some one's chicken-yard. They never show fight, but take a tremendous lot of killing. Dogs think them rather "fun"—good things to practise on—but they rarely give a run, as they usually make their approach from some pile of wood or other good description of cover. They are diurnal; so that, what with Musangs and Civets at night and Monitor Lizards by day, chicken-keepers learn a good deal more practical Zoology than they at all desire to do.

I am not sure whether I have found a new species of Monkey or not, and should be glad to know if there is only one species of Proboscis Monkey (*S. nasalis*) known, or two.* I have one very distinct from it. In 'Cassell's Natural History' I read of the Variegated Monkey (*S. nemæus*)—"They yield to the researches of the anatomist the same internal arrangement of the cavities of the stomach which has been noticed in the Long-nosed Monkey." In its markings the one I got exactly resembled the picture given of *S. nemæus*, but it had a nose as large as *S. nasalis*; it was three feet eight inches high, about as big as the smaller species of Orang-utan, strongly built, and with a determined expression on it; while *S. nasalis* is a weak-jointed feeble-looking creature. I got this specimen on the island of Balhalla, just outside the Bay; and if there was one there, it may be reasonably presumed there are more.

* There are said to be five species of the genus *Simnopithecus* in Borneo, but we are not aware that more than one of these (*S. nasalis*) has the remarkably elongated proboscis.—ED.

THE WHITE-BACKED WOODPECKER NOT A BRITISH BIRD.

BY ALFRED NEWTON, M.A., F.R.S.

SINCE, of necessity, some time will elapse before the appearance of Part XV. of the revised edition of Yarrell's 'British Birds,' to which I have to defer my remarks on the various foreign species of *Picidæ* which are reported to have occurred in this country, it may interest the readers of 'The Zoologist' to know that the claim advanced on behalf of one of them—*Picus* or (as I prefer calling it) *Dendrocopus leuconotus*, the White-backed Woodpecker—is, in my opinion, wholly inadmissible. That claim rests solely upon a specimen, said to be one of those which were recorded nearly twenty years ago (Zool. 7754, 7932) as obtained by the late Dr. Saxby in Shetland and referred to this species by the late Mr. Gould, by whom it was figured in his 'Birds of Great Britain,' as Mr. J. H. Gurney rightly states (Zool. s. s. 4695). Thanks to its owner, the gentleman last named, I have been allowed to examine it, and I may say that not much comparison was needed to excite my suspicion that Mr. Gould was absolutely mistaken in his determination of it. It was so minutely described by Messrs. Dresser and Sharpe, in their 'Birds of Europe,' as a variety of *Picus* or (as I should say) *Dendrocopus major*, that I need not enter into many particulars.

Apart from size and the form of the beak, the most obvious distinction between *D. major* and *D. leuconotus* is that the latter has the middle of the back white, and the scapulars black, while in the former the allocation of these colours in those parts is reversed—*D. major* having conspicuous white scapulars (with a few occasional dark marks), and the back wholly black. In these respects Mr. Gurney's specimen entirely agrees with *D. major*—Mr. Gould's assertion, that "if the long black feathers of the back be lifted, a large amount of white will be found beneath," being contrary to fact. Again, in *D. leuconotus* that branch of the black mandibular stripe which passes upwards behind the ear-coverts does not meet the black of the head, while in *D. major* (except perhaps in examples from near Constantinople, which in this respect show a tendency towards *D. syriacus*) the

same branch forms a complete post-auricular bar. Here again Mr. Gurney's bird agrees with *D. major* and not with *D. leuconotus*, though Mr. Gould's figure, taken from this very specimen, omits the bar altogether! Once more, *D. leuconotus* has large white spots on the greater wing-coverts, which are generally wholly wanting and never largely developed in *D. major*; and once more Mr. Gurney's bird agrees with *D. major*. Characters like these completely outweigh the slight resemblance that Mr. Gurney's bird bears to *D. leuconotus* in the indistinct streaks on the sides of the belly, which Mr. Gould thought were distinctive of the young of that species, for they occasionally occur in the young of *D. major*—though not, so far as my experience goes, in examples of British origin. But the history of Mr. Gurney's bird points to a foreign origin for it, since it was indubitably one of a number of refugees to the Shetlands (not "the Hebrides," by the way, as Mr. Gould inadvertently states), not very likely to have flown thither at that time of year (September) from any part of Great Britain. Finally to settle, as I hope, this point for ever, I have compared Mr. Gurney's bird with an unquestionably young specimen of *D. leuconotus* in the British Museum, obtained by Herr Meves at Onega, June 28th, 1869. This last resembles, as might be expected, the adult of the same species very closely, differing only just in the way that the young of most pied Woodpeckers differ from their seniors. Consequently it is wholly unlike Mr. Gurney's bird, which I can now affirm in the most positive manner is NOT *D. leuconotus*—and therefore the only claim for the admission of that species to the British list falls to the ground. Herein I may say that Mr. Seebohm, who kindly assisted me in my comparison of specimens at the British Museum, entirely concurs, as also does Mr. Salvin, though the latter had not the advantage of seeing so large a series of specimens.

Having thus proved, as I trust, that Mr. Gurney's bird is not a *D. leuconotus*,* the next thing of course was to find out what it is. Its most remarkable features, and those only which are peculiar to it, are the grey upper wing-coverts and hind-head

* To obviate any future error on the subject, I may say that it differs just as strongly (though of course in other ways) from *D. medius*, which some, according to Saxby (Birds Shetl. p. 141), have supposed it to be.

(which, I may remark by the way, are characters separating it as widely from *D. leuconotus* as from any other species known to me). Next to these are the indistinct streaks in the sides of the belly and flanks, and the pale red of the vent. Mr. Seebohm has kindly shown me two specimens shot in Heligoland in October, 1876, out of a band of visitors similar, no doubt, to that which appeared in Shetland in the autumn of 1861. Both these are, like Mr. Gurney's, birds of the year,—a fact proved not only by their red heads, but by the first primaries, which among Woodpeckers seem to be always larger in the young than in adults,—and both of them exhibit (though one much more than the other) the indistinct iliac streaks and the pale red of the circum-anal region. But both of these birds have always been accounted specimens of *D. major*, the ordinary plumage of which they in other respects entirely match, and I think he would be a bold man who would venture to refer them to any other species.*

Accordingly it comes to pass that the only points in which Mr. Gurney's bird differs from examples of *D. major* are the before-mentioned grey upper wing-coverts and hind-head—for I should perhaps have mentioned before that in size it agrees absolutely with that species. Undoubtedly these parts ought to be black, but, when we know that albinescence, or canescence, is the effect of a physiological process from which there is reason to suppose that no birds are exempt, though it is much commoner in some groups than others, I think it is but right to ascribe the abnormal appearance of Mr. Gurney's bird to this cause; and hence I wholly subscribe to the opinion delivered more than ten years since by Messrs. Dresser and Sharpe, namely, that the bird shot at Halligarth, in Unst, on the 3rd of September, 1861, by the late Dr. Saxby, the skin of which is now in Mr. J. H. Gurney's collection, is a variety of the Greater Spotted Woodpecker, *Dendrocopus major*.

20th August, 1881.

* Indeed Naumann (Vög. Deutschl. v., p. 302) describes the young of this species as streaked with blackish on the thighs and flanks.

THE BIRDS OF BRECONSHIRE.

BY E. CAMBRIDGE PHILLIPS,

Member of the Woolhope Naturalists' Field Club.

BRECONSHIRE is not a large county, and is so well known that it needs but a slight description. It embraces among its general features, in a marked degree, mountain and moor, valley and hill; it has one large lake, Llangorse, with numerous mountain tarns, and is drained by the Usk and partly by the Wye and their tributaries. Yet with all these advantages of Nature the Ornithology of the county is not so varied as might be supposed. Our grand old Beacons are singularly destitute of bird-life; on the other hand, the moors, which extend over a great part of the county, are fairly well stocked. On them, as of yore, the Red Grouse and Blackcock, the Wild Duck, Teal, Snipe, Curlew, and Plover still breed, though in much diminished numbers. Llangorse Lake unfortunately is so constantly shot over that what should be a "home for water-birds" now shelters only a few Ducks, Coots, Grebes, and Rails. Our rivers are, without exception, fast flowing, and water-birds, unless pressed by hard weather, avoid if possible (with the exception of the Water Ouzel or Dipper) these kind of streams. The absence also of a sea-coast still further reduces the number. Notwithstanding these drawbacks, Breconshire, as the following notes will show, can boast of a fair average list of birds. The rarer species are getting rarer still; in these days of cheap guns any but the most ordinary bird is at once shot down, and it is this continued diminution that has determined me to compile the following notes, which in nearly every instance have been the result of actual and careful observation. I purpose taking first the land and then the water-birds.

GOLDEN EAGLE, *Aquila chrysaëtus*.—Although there are numerous localities that are exactly suitable to its habits, I can only record one instance in which the Golden Eagle has been met with in Breconshire. About twenty-three years ago one was killed at Penpont, near Brecon, by a keeper of Mr. Williams, the owner, and through his kindness I was permitted to inspect the bird. It was stuffed very fairly by a private of the 23rd Regiment, then stationed at Brecon, but had not been cased. It showed no

marks of captivity when I saw it, none of its feathers being worn as if from confinement. I should consider it, from its plumage, to be a bird of three or four years old, and to have strayed to the Beacon in search of food. About this time I hear that another, probably its mate, was killed in the adjoining county of Glamorgan.

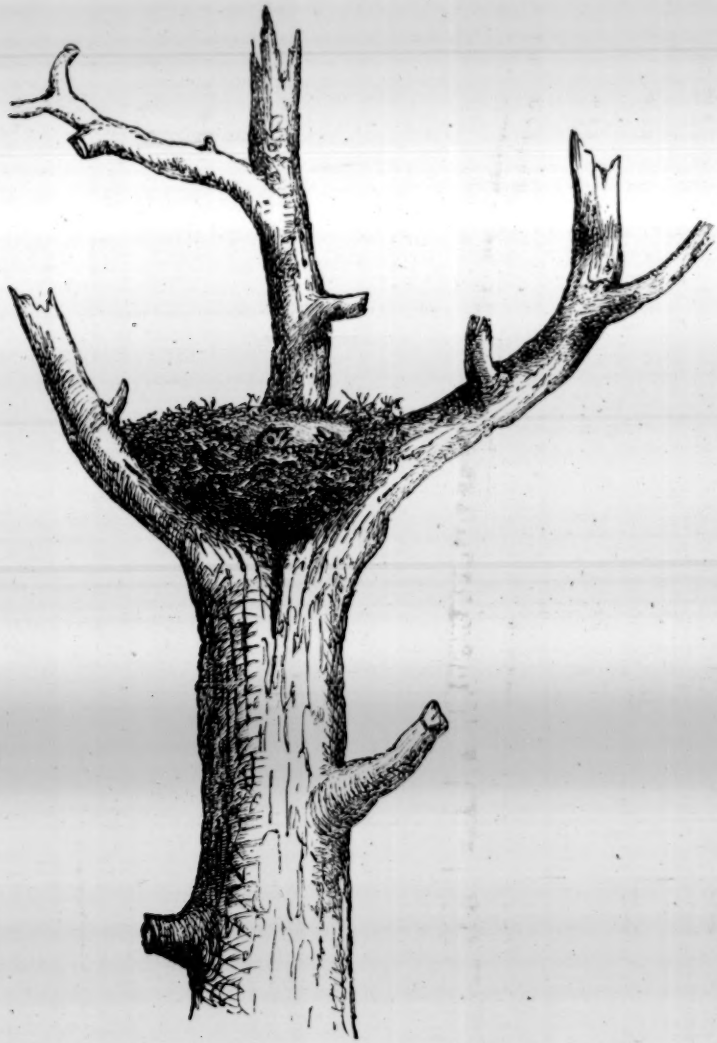
OSPREY, *Pandion haliaëtus*.—Although I have made many enquiries I cannot find that the Osprey ever frequented Llangorse Lake, although it might be supposed to be a locality well suited to this bird. One was killed on the Wye near Clyro, and is at present at Clyro Court.

BUZZARD, *Buteo vulgaris*.—Still fairly common. Many a time have I watched them soaring around, for hours together, high over the trees of Venny Wood, near Brecon, uttering their wailing, weird cry. They are still to be seen on the rocky hills adjoining Llanwrtyd Wells and in the various wild gorges of the Beacons. Unfortunately they are easy birds to trap, and the day will come when, as in the case of the Kite, we shall not see more than one or two in the course of the year. The Buzzard has always been considered a lazy bird; when roused it is quite the reverse, and two I trapped were so defiantly grand in their attitude that, not being much hurt, I sent them to the Zoological Gardens, knowing that they would get every attention there. One of them, I believe, lived some little time. This bird is very fond of sitting on a rock, and if by chance there is one in or near any cover it may be generally trapped on it. It is very regular in its search for food, and may be seen nearly every day in the same place about the same time.

HONEY BUZZARD, *Pernis apivorus*.—I only know of one instance of the occurrence of this bird in Breconshire. This was shot at Frwdgrech, near Brecon. I saw it in its case, but the estate having changed hands I am unable to record any of the circumstances attending its capture. It can only be regarded as a very rare visitor.

KITE, *Milvus regalis*.—This fine bird seems to be increasing here very slightly. Ten or twelve years ago it was nearly extinct, and during a like period I only saw two. Now, however, I know of three places where it breeds, and occasionally one may still be seen passing over at a great height. In the month of May, 1875, I went to a place near Upper Chapel to see the nest of a Kite,

and a drawing of it which I made at the time appeared, with a short description, in 'Land and Water' shortly afterwards. After driving as near the place as the carriage would go, we got out and walked, crossing a small valley until we reached a larch wood growing on the side of a very steep hill. The trees were large



Kite's Nest at Upper Chapel, Breconsshire.

and high, and in the middle of the wood far up on one of the largest trees that suddenly forked into three gnarled branches was the nest comfortably and securely fixed between them. On striking the tree the hen bird flew out, seemingly much alarmed, whilst the male soared about in the distance, no doubt anxiously

awaiting our departure. By climbing up the brow of the wood we could look down into the nest, in which were three young ones covered with yellow down, the head of one being distinctly visible. This was in the second week of May. At the foot of the tree were some partridge-feathers, but none of those castings that are found when the young get older. The tenant told us that he had seen a quantity of castings with feathers and fur in previous years, and that in the year 1875 there were three Kites in the pairing time, but that one had left; this was most probably a young bird of the previous year that had been bred there. I hear that the birds still breed in the locality; but the fact of the one bird staying with the old ones so long will, I think, be sufficient evidence of their general scarcity.

PEREGRINE FALCON, *Falco peregrinus*. — Alas! extinct or nearly so! I have known of several specimens killed some years ago, but it never bred here. I am enabled to state this as a fact, from the information I received from old Morgan the falconer, a small farmer living at Nantytrodin, near Llanwrtyd Wells, who I may designate as one of the last of his race. I made his acquaintance when fox-hunting near the cave of Twm Shon Catti, on the Towy, some seventeen years ago; and even now I can see the spare wiry figure, with long white hair waving about his shoulders, his eyes fairly flashing with excitement as he sprang from rock to rock and cheered the hounds. Many a chat have I had with him about his favourite sport, falconry. He told me that for many years he used to walk from Llanwrtyd, in Breconshire, to Snowdon and back nearly every year to obtain young Falcons, as he could not procure any in Breconshire. He trained and flew them himself, but when I knew him he was too old to climb for them. He was very fond of a Merlin, and had trained the female Sparrowhawk to fly at Landrails. As he lived in the wildest part of the county, no one interfered with him; he was a true lover of nature, and had a wonderful knowledge of everything appertaining to the habits of birds. Poor old Morgan! kindly in his nature, pleasant in his manner, though wild at times as the hawks he trained and as the scenery among which he lived—he is gone; and with him, in this part of the county at least, the practice of his favourite pastime. During my residence in this county (some seventeen years) I have never seen the Peregrine alive. I have, however, seen several stuffed

specimens, notably a young Falcon obtained from the rocks at Abergwessin.

HOBBY, *Falco subbuteo*.—Very rare in this county. I have only seen two stuffed specimens, one a large hen bird which was killed near Brecon, and another killed near Nantgwilt.

MARSH HARRIER, *Circus rufus*.—This bird was formerly common on the hills between the Storey Arms and Merthyr. There are three beautiful specimens, killed in this county and splendidly preserved by Leadbeater, in the possession of Mr. David Thomas, of Brecon.

HEN HARRIER, *Circus cyaneus*.—Now nearly extinct. A pair for years nested on the Breconshire side of the river near Nantgwilt, Radnorshire, but were at last trapped on account of their extreme destructiveness and their nest and eggs taken. I am indebted for the above information to a lady, one of the members of the Nantgwilt family, herself a keen lover of Nature and a great preserver of all wild birds, who kindly showed me the hen bird, which had been preserved and was in her possession. She has also a specimen each of the Hobby and Merlin, killed at the same place, and several Buzzards, which bears out my statement that the Buzzard is still far from rare in the county.

MERLIN, *Falco aesalon*.—Cannot be considered common. I have only seen it once on the wing near Brecon. A friend of mine killed one near the town in excellent plumage, and I have seen several others stuffed. This beautiful and bold little fellow should be let alone; there are plenty of small birds for him, and if he does occasionally fly at higher game by all means let him have it. Mr. Dilwyn Llewellyn thinks that this hawk is often taken on the wing for the male Sparrowhawk, and that it is more common than is generally supposed, and his authority is not to be slighted.

KESTREL, *Falco tinnunculus*.—The English name of Windhover seems most appropriate to this common bird, for it is always hovering in the air. Many writers assert it is a useful bird, from the quantity of mice it destroys; I think, however, that it kills what it can. A friend of mine had a nice brood of Pheasants, which he put under a hen, and for greater security he put them directly in front of his window; day by day they improved in size, but decreased in numbers, until they were nearly all gone, in spite of careful watching; one day, however, like a flash of

light a hawk darted round the corner and took one of them; a lucky shot laid him low, and on picking him up the culprit was found to be a Kestrel.

SPARROWHAWK, *Accipiter nisus*.—Very common. I once found a Sparrowhawk in a singular situation; going to my garden in Brecon one night in the dead of winter, to catch some game bantams that roosted in a thick holly-tree, I turned a lantern on them suddenly, and there saw a hen Sparrowhawk roosting close by the bantams! I carefully put my hand over its back, but directly I touched her she dashed off into the darkness and I saw her no more; what she was doing there I cannot make out, but I imagine that the night being bitterly cold she must have crept up to the fowls for warmth. On another occasion during a continued snow I saw a Sparrowhawk make a most determined attack on a duck-wing bantam cock, and had she not been driven off I believe she would have killed him. A station-master who lives on the borders of this county, and who keeps canaries in the large glass window of the station, tells me that he has caught three Sparrowhawks that have struck at the canaries, two of which dashed right through the glass and were killed, and the other stunned itself and was picked up outside the window.

LONG-EARED OWL, *Otus vulgaris*.—I consider very rare here. Mr. Dilwyn Llewellyn has observed it in Glamorganshire. I have known of so very few specimens, that I imagine it favours Glamorganshire more than this county.

SHORT-EARED OWL, *Otus brachyotus*.—Also very uncommon. Although I have for years shot over open heaths and the like places, I have never seen it. It is, however, fairly common in Glamorganshire.

BROWN OWL, *Syrnium aluco*.—Much commoner than the Barn Owl. In nearly all the woods about Brecon, and in the Priory-groves adjoining the town, as evening approaches one may hear them. They frequent a large elm-tree growing close to my house, where they terrify the servants, who are most superstitious, with their cries. Among the Welsh it is considered most unlucky to kill an owl, but whether this accounts for their numbers is more than I can say; it may possibly have something to do with it.

WHITE OR BARN OWL, *Strix flammea*.—Common throughout the county, but not nearly so numerous as the last-named.

When returning from an evening's ramble I sometimes see it gliding with noiseless flight over the fields. On all "keepers' trees," where one so often picks up a lesson in Ornithology, the Brown Owl outnumbered the Barn Owl considerably. The keepers, as a rule, wage dire war against the poor owls; they make a great show on a tree, and are very easily trapped; while, after all, the harm they do is small. The Barn Owl is a positive benefactor to the farmer from the quantities of mice it kills.

GREAT SHRIKE, *Lanius excubitor*.—I imagine this to be only a very occasional visitor, although one was obtained some ten years since in the adjoining county of Glamorgan by Mr. Dilwyn Llewellyn.

RED-BACKED SHRIKE, *Lanius collaris*.—Common. I have often observed it in the hay-fields adjoining the town perching on the hedges, the brilliant colour on the back of the cock rendering it very conspicuous.

MISSLE THRUSH, *Turdus viscivorus*.—Very common; it nests in my garden every year, where it attacks every living thing in the shape of a bird, uttering its harsh grating cry. It is one of our boldest birds in the breeding season, and seems during this time to lose every vestige of its shyness.

SONG THRUSH, *Turdus musicus*.—Very common. The hard winter of last year has, however, sadly reduced their numbers; and quantities were found dead in the severe snow-storm of last January.

BLACKBIRD, *Turdus merula*.—Very common. Much more so, indeed, than the Thrush; they seem to stand the cold better than the latter bird. I have observed several more or less white, and of all the Thrush family this bird seems peculiarly susceptible to white markings in its plumage.

FIELDFARE, *Turdus pilaris*.—Common in winter, when its appearance is hailed with delight by the sportsman, who knows that it arrives about the same time as the Woodcock. It is a very wary bird, and can take excellent care of itself, as anyone who has attempted to shoot it has no doubt found out to his cost.

REDWING, *Turdus iliacus*.—Equally plentiful; it arrives at the same time and generally in company with the Fieldfare; it sometimes stays latest on in the spring, and once in Wiltshire I heard

it singing at that time. Until then I had no idea its song was so beautiful. A flock of several were singing on a thorn, and, not knowing the song, I killed one and found to my surprise it was a Redwing.

RING OUZEL, *Turdus torquatus*.—Fairly common at times on our heathery moors. I have observed it on a hill called the Crug, near Brecon, and generally in the autumn.

WATER OUZEL or DIPPER, *Cinclus aquaticus*.—One of our commonest birds. Wherever the stream flows swiftest and strongest, there on a rock in mid-stream—the happiest and merriest little fellow of all our birds—you will see the Dipper. Such an active, bustling, and important bird; now dabbling in the water, now splashing about in his glee, then off down stream like an arrow, uttering its gladsome cry. This bird is a great favourite of mine, and I have often watched it carefully. The late Frank Buckland used to say he was not sure whether it ate the salmon-spawn or not. I do not think it does, but feeds on water-insects. I have never observed it with spawn in its mouth; and if perchance it should take fish for its first course, I am sure we can spare the spawn. I am informed by those that have had the cruelty to try it, that if you rob the Dipper's nest it will not forsake it, but lay an incredible number of eggs: such is its fearlessness.

SPOTTED FLYCATCHER, *Muscicapa grisola*.—Common. It may be generally seen in some of the gardens around Brecon, where it hawks for flies, and its movements when so doing are very elegant and beautiful.

PIED FLYCATCHER, *Muscicapa luctuosa*.—This county seems to be a favourite resort of this bird, and I may say with truth that it is fairly plentiful. It has bred in my garden at Vennyvach, and it nests also in several places in and near this town. Ornithologists residing here (and they are very few) agree with me that it is far from rare; and therefore I can only arrive at the pleasant conclusion that, although elsewhere generally considered a scarce bird, this county seems exceptionally favoured.

(To be continued.)

NOTES ON THE FOOD OF BIRDS.

COLLECTED BY FRANK NORGATE.

(Concluded from p. 325.)

LAPWING.—Insects, slugs, and earthworms (Yarrell).

TURNSTONE.—Small Crustacea and Mollusca (Yarrell). During summer feeds on bees, larvæ of *Argynnis chariclea* and *Dasychira grønlandica*, and *Tipulæ*. Stomachs almost filled with larvæ (Yarrell).

SANDERLING.—Sea-worms, small Mollusca, shrimps and other Crustacea, minute beetles, small white worms, sandhoppers (Stevenson).

OYSTERCATCHER.—Marine insects, worms, and Mollusca (Yarrell). Limpets, mussels and cockles (Harting).

CRANE.—Aquatic plants, worms, reptiles, molluscs, and grain (Yarrell).

HERON.—Fish, reptiles, small mammals, and birds (Yarrell). Frogs, water beetles, boat-flies, water rats, and especially pike-fry and eels (Stevenson). Feeds its young with eels; these and pike seem to be about the most destructive fish we have in our British fresh-waters (F. N.) The Heron also devours young wild ducks, and will take young Moorhens from the nest (Harting).

PURPLE HERON.—Aquatic insects, small mammals, reptiles, and fish (Yarrell).

GREAT WHITE HERON.—Fish, aquatic insects, molluscs, and reptiles (Yarrell).

BUFF-BACKED HERON.—Attends cattle, and eats insects from and amongst them (Yarrell). On the banks of the Perak River an allied species of Heron, *Buphus coromandus*, attends buffaloes, perching even on their backs and freeing them from ticks and other obnoxious insects ('Field,' March 6th, 1880).

SQUACCO HERON.—Insects, molluscs, and small fish (Yarrell).

LITTLE BITTERN.—Frogs, fry of fish, insects, molluscs, and small reptiles (Yarrell).

BITTERN.—Insects, *Dytiscus marginalis*, *Notonecta*, and eels (Stevenson). Coleoptera, small mammals, small birds and fish (dace), frogs, warty lizards, and young Water Rails (Yarrell).

NIGHT HERON.—Aquatic insects, small reptiles, and fish (Yarrell).

WHITE STORK.—Reptiles, fish, young water-fowl, aquatic insects, worms, small mammals (Yarrell). Snails and frogs; it refuses toads (Stevenson).

BLACK STORK.—Fish, eels, large insects, worms, mice, and reptiles (Yarrell).

SPOONBILL.—Sandhoppers, shrimps, small fish, aquatic insects, molluscs, and small reptiles (Yarrell).

IBIS.—Small reptiles, fry of fish, small Crustacea, aquatic insects, worms, &c. (Yarrell).

CURLEW.—Marine insects, worms, and small Crustacea (Yarrell). On sandy parts of the coast feeds largely on cockles (Harting).

WHIMBREL.—Insects and worms (Yarrell).

SPOTTED REDSHANK.—Minute spiral univalves, aquatic insects, worms, and small Testacea (Yarrell). Small beetles (Harting).

REDSHANK.—Aquatic insects, marine and other worms (Yarrell). Vegetable fibre and minute particles of grit often found in the stomach, together with small beetles and fragments of small univalve Mollusca (Harting).

GREEN SANDPIPER.—Worms (Yarrell). Small beetles (Harting). Spiders, woodlice, small red worms, and small freshwater snails (Stevenson).

WOOD SANDPIPER.—Insects and worms (Yarrell).

GREENSHANK.—Small fish, smelts, bearded loach, insects, worms, Crustacea and Mollusca, shrimps (Yarrell).

AVOCET.—Thin-skinned Crustacea, aquatic insects, worms (Yarrell). Small black beetles which abound in the mud banks of the river at Breydon (Stevenson).

BLACK-WINGED STILT.—Aquatic insects (Yarrell). "A Stilt was seen snapping at insects buzzing round it" (Stevenson). Small thin-shelled Mollusca (like *Physa* and *Succinea*), which it picks off the leaves of aquatic plants (Harting).

BLACK-TAILED GODWIT.—Insects and their larvæ, worms, &c. (Yarrell). Small univalve Mollusca (Harting).

BAR-TAILED GODWIT.—Aquatic insects, worms, and mollusks (Yarrell).

RUFF AND REEVE.—Insects and worms (Yarrell). Reeve, small bronze-winged beetles and earwigs (Stevenson).

PRATINCOLE.—Beetles (Stevenson).

WOODCOCK.—Common earthworms in great quantities (Yarrell).

GREAT SNIPE.—Larvæ of *Tipulæ* or congenerous flies (Yarrell).

SNIPE.—Insects, worms, and Mollusca (Yarrell). Earthworms, insects, and small Mollusca (Stevenson).

JACK SNIPE.—Small beetles (Stevenson). Small white larvæ and seeds (Yarrell), and worms (Harting).

CURLEW SANDPIPER.—Sandhoppers, insects, worms, and small Crustacea, such as shrimps (Yarrell). Coleopterous insects and small worms (Stevenson).

KNOT.—Aquatic insects and bivalves (Yarrell). Of a number of Knots' stomachs examined during the British Polar Expedition of 1875-6 only one contained any food; this consisted of two caterpillars of *Dasychira grænlantica*, Wocke, one bee, and pieces of an Alga, *Gleocapsa magna*, Klr. (H. C. Hart).

BUFF-BREADED SANDPIPER.—Land and marine insects, particularly grasshoppers (Yarrell).

LITTLE STINT.—Mollusca, aquatic insects, worms, small Crustacea (Yarrell). Flies (Stevenson). Small beetles (Harting).

TEMMINCK'S STINT.—Insects and worms (Yarrell).

PECTORAL SANDPIPER.—Small Coleoptera, larvæ, *Ulva latissima*, and some species of *Fucus* (Yarrell). Insects (Stevenson).

DUNLIN.—Minute Coleoptera (Stevenson). Aquatic insects, worms, Mollusca, and small thin-skinned Crustacea (Yarrell).

PURPLE SANDPIPER.—Marine insects, &c. (Yarrell). Small Mollusca, shrimps, and sandhoppers.

GREY PHALAROPE.—Small flies and beetles (Stevenson).

RED-NECKED PHALAROPE.—Flies (Stevenson). One which was caught and brought to me was so tame that it swam about in a small basin of water, and ate many small flies which I dropped on the water as fast as I could supply them, and whilst my hand was within a few inches of the bird (F. N.)

BEWICK'S SWAN.—The gizzard of one shot in Norfolk in February, 1880, contained silt, pond-grass, water insects' legs, and the tail of a small fish (J. H. Gurney, Jun.)

SCAUP and COMMON SCOTER.—Marine Mollusca of various species, the gizzards being sometimes crammed with fragments of the shells (Harting).

COMMON TERN.—Small fish, shrimps and sandhoppers, moths, and craneflies (Harting).

ARCTIC TERN.—The chief food of those examined during the British Polar Expedition of 1875-6 was "green caterpillars,

Argynnis chariclea and *Tipula oleracea*; stomachs examined sometimes contained over a dozen caterpillars" (H. C. Hart).

BLACK TERN.—Very useful; destroys quantities of crane-flies, *Tipulæ* (Harting).

GLAUCOUS GULL.—Probably often depends upon Lemmings for food (H. C. Hart).

BUFFON'S SKUA.—Discovery Bay, June, 1876. "As far as my actual observations went, these Skuas subsist entirely upon Lemmings, numerous specimens which I dissected containing remains of this animal alone: they seem, however, in all cases, to reject the entrails" (H. C. Hart). The Buffon's Skuas examined by Mr. Seeböhm at the mouth of the Petchora River had been feeding on beetles (Seeböhm, 'Siberia in Europe').

The young of small birds are fed, almost exclusively, on insects injurious to man (M. Florent Prevost).

NOTES AND OBSERVATIONS ON BRITISH STALK-EYED CRUSTACEA.

By JOHN T. CARRINGTON, F.L.S., AND EDWARD LOVETT.

(Continued from p. 364.)

Genus *HYAS*, Leach.

This genus somewhat resembles the genus *Pisa* in its general features, though its specific characteristics and minor details stamp it at once as quite distinct; like *Pisa*, too, this genus consists of two species hitherto known to Britain. The genus *Hyas* is another of the large group of Crustacea popularly called "spider crabs." The carapace is roughly triangular, with the lower angles rounded and the anterior angles cleft to form a rostrum; there is a notch for each orbit into which the eyes are capable of being turned back. The antennæ are short, the peduncle very slightly hairy. The legs are long, nearly cylindrical, and tapering, the anterior pair being developed into broad forceps, the second joint being slightly tuberculated. The legs are armed with a sharp claw, but are not adapted, like those of *Pisa*, for clenching a hold on Algæ. The abdominal somites are seven in number in each sex, those of the male being wider at the third and sixth somite, whilst those of the female are broad and pear-

shaped; those of both sexes are divided by a ridge equally and vertically.

Hyas araneus, Leach.

This species may readily be distinguished from the following by its size, although when this cannot be relied upon the structure of the carapace is sufficient. The carapace is covered with small tubercles and a few spines. Its lateral margin is a double curve formed by the rounded basal angles and the contraction of the anterior portion terminating at the point at the base of the orbit. The colour of this species varies from reddish yellow to pale brown, some that we obtained from the coast of Sussex being remarkably clean and of a beautiful Venetian red tint, whilst others that were collected from the Thames estuary, though very fine, were of a dingy pale brown and dotted here and there with extraneous growth.

We have referred to the large size to which this species sometimes attains. Prof. Bell gives the dimensions of a male, which are as follows:—Length of carapace, 3 in. 6 lines; breadth of ditto, 2 in. 6 lines; length of anterior legs, 5 in. 3 lines. Dr. Howden (Zool. 1853, p. 3838) records specimens of males obtained from crab-pots off Prestonpans which measured twelve inches from tip to tip of third limb.

Prof. Bell records this species as having been taken in the following localities:—Worthing; coast of North Wales; Hastings, in considerable abundance; Sandgate, on oyster-beds, of large size; Carrickfergus; Youghal; Dublin; Loughs of Strangford and Belfast; Bundoran; and the coast near Edinburgh. We have obtained it freely from the channel off the Sussex coast, the Thames estuary, and off the Essex coast. It has also been recorded from St. Andrews, abundant; Shetland, large specimens from Laminarian zone; Belfast; North and West of Ireland, common; Dublin; Galway, common; and South Devon. From these it would appear that this species is very generally distributed. We are not aware of its being used anywhere in this country as an article of food.

Hyas araneus is with ova in the early part of the year. The ova superficially resemble those of the genus *Pisa*, except that they are paler in colour.

Hyas coarctatus, Leach.

This species, although resembling the former in all its generic details, presents such a distinct difference from it as to be recognised at a glance. This marked characteristic consists of a decided contraction immediately above the gastric region of the carapace, which causes the anterior portion, as far as the orbits, to assume a curious ear-like development. The first pair of legs are longer, and the remaining pairs shorter and more slender in proportion to the size of the animal, than those of the former species. The carapace is of a paler red generally than that of *H. araneus*, and is tinged on the underside with white; it is also tuberculated. The size of the animal is, on an average, very much smaller than that of the former species.

This species, as Professor Bell remarks, was discovered by Dr. Leach in the Firth of Forth. It is recorded, by Bell also, as occurring at Hastings, Worthing, Sandgate, Cornwall, Zetland, the Orkneys, the Loughs of Belfast and Strangford, and the coast of North Wales. We have obtained it from the Sussex coast, Milford Haven, and also from the Nore. Mr. Carrington found it abundant while trawling off the east coast in the North Sea. Those from the south coast, like *H. araneus*, are particularly clean and bright. It is also recorded as having been taken at St. Andrews, common; Plymouth; Shetland, the most common form of the higher Crustacea; Galway, common in ten fathoms; coast of Aberdeen; Moray Firth; and Berwick.

It is certainly very perplexing to understand the question of ova, as regards the Crustacea, for this species is an example of the difficulty as to date of spawning. For instance, we obtained specimens from the Channel on January 5th, 1881, with ova quite mature. We also obtained others from Milford Haven on April 22nd, 1881, with ova *not* mature. In the British Association Report for 1866 (p. 212) it is recorded in spawn in July, October, and November; whilst, according to Bell, Mr. Hailstone says it spawns in January. We can quite depend upon our own observations, which were carefully recorded at the time, and we have no reason to doubt those of other recorders. The ova much resembles that of the former species; they become very dark on approaching maturity.

Maia squinado (Latr.).

As this genus only comprises one British species, we will not refer to its generic features separately, but briefly describe the species at once.

The carapace of *Maia squinado*, unlike that of preceding species, is very rounded in form, not only laterally, but also dorsally. It is much covered with spines, the points of which are frequently worn round, no doubt by the animal crawling beneath rocks and between cleft ledges. The rostrum is somewhat similar to that of *Pisa*, but more divergent. The antennæ are small, the second and third joints being about equal in length. The legs are cylindrical and hairy, the anterior pair being much longer than the remainder. They, however, vary very much in length, some specimens having them much more developed than have others. *Maia squinado* has a remarkable habit of gathering its legs together in a very awkward-looking manner when handled, and if it can obtain a hold on—say a net—it is with difficulty that it can be removed. We have met with specimens that have at some time lost limbs, which have been in due course renewed, the fresh ones being about an inch long, while the carapace of the crabs were about six inches across. The disparity in appearance is very curious. The abdomen is seven-jointed, that of the male being, as usual, narrow, while that of the female is very broad—in fact, almost round—thus affording “cover” to masses of ova.

This species, though not so liable to the growth of extraneous forms as many others, is nevertheless not free from them. We have seen specimens completely encrusted with tubes of *Serpulæ*, small *Balani*, and young oysters, together with little tufts of Polyzoa. Others, again, of even larger dimensions, are perfectly free from such growth. Hence it follows either that the casting of the shell must take place at longer intervals than is generally supposed, or else that some specimens arrive at maturity in a diminished size, whilst others cast their exoskeletons and continue to grow to much finer proportions. The organic forms frequently met with on medium-sized specimens are not merely the result of a few months’ or a year’s development, but must have taken a much longer time. In Mr. Carrington’s cabinet is one evidently old specimen of this species, which is richly covered with short sponges, *Balani*, &c., with the addition of

half a dozen interesting little oysters (*Ostrea edulis*), of within the first year's growth. Another example in the same collection is comparatively clean, but on the carapace is a fine young oyster of between the second and third years of age. We think this conclusively proves that the change of exoskeleton is much more rarely, or possibly never, effected after a certain age.

Maia squinado is one of the largest of our English "crabs," and its size has therefore attracted attention to it as an article of food. It is "The Spider," *par excellence*, and is eaten in many localities, principally by the poorer classes, who almost invariably recognise it by the above name. Prof. Bell records an amusing incident to illustrate this; he also speaks of their being sold at Poole and also in Cornwall; in the latter they are known as the "Corwich." In Jersey, where they are called by the fishermen "pianne," they are largely caught, both in "pots" and also at low tide near La Rocque. We accompanied a fisherman on a visit to his pots, and took about sixty of these crabs, male and female in almost equal numbers, which he said was a fair "take" for about five and twenty pots. As this sort of thing goes on comparatively regularly, and has for generations past, the supply of *M. squinado* certainly seems remarkable. As regards the crab as an article of food, it certainly has the disadvantage of paucity of "meat," but the flavour is delicate and sweet, and in some opinions superior to that of *Cancer pagurus*.

Prof. Bell, in his work, quotes an interesting account, by Mr. Couch, of the early life of *M. squinado*, to which we would refer our readers; his description of the appearance of the ova is very correct, and his general observations most valuable as illustrating the early life-history of this interesting animal.

This species is fairly distributed, and may be said to be common, particularly on our southern shores. M. Milne-Edwards says, "it inhabits the Channel, the ocean, and the Mediterranean"; he also goes on to record a somewhat interesting mythological idea, namely, "The ancients considered it as having the gift of intellect, and represented it as hanging around the neck of Diana of Ephesus, as an emblem of wisdom. It is also put as an effigy on some of their medals."

It is common on the southern coast of Ireland, and also, according to the 'Natural History Review' (vol. iv. p. 152), at Galway. We are indebted to Mr. E. B. Kemp-Welch, of Bourne-

mouth, for the following remarkable observation:—"This species, though known to be common in Swanage and Studland Bays, immediately opposite Bournemouth, is scarcely ever thrown up on the beach at the latter place; but in July, 1875, an enormous number occurred, forming a little bank, and comprising many thousand specimens. Some of them were very large, and many in a soft state after change of skin. All were thrown up dead. I could never hear of any occurrence in the neighbourhood to account for this wholesale destruction. If it had been the result of submarine explosion or the like one would have expected to find other species, dead fish, &c., amongst them; but nothing besides *Maia squinado* was there, beyond the usual casual specimens that turn up on the beach. Nothing of the kind has happened since, to my knowledge."

Eurynome aspera, Leach.

This beautiful little crab terminates our British list of "spiders," or triangular carapaced Crustacea. It is an elegant species, and of a pleasing bright colour. Its carapace is usually about three-quarters of an inch in length and proportionately broad; it is extremely spinous and tuberculated, as also indeed are its legs. The rostrum is large in proportion to the size of the animal, and divergent; the anterior pair of legs are remarkably long, and the fingers are somewhat curved. The abdominal segments are carinated and tuberculated, those of the female being much broader than those of the male.

Prof. Bell remarks that this species is a deep-water one; it, however, is not entirely so, for we have obtained it fairly plentiful from the bays of the Channel Islands.

It has been recorded from St. Andrews, rare; Dublin, rare; Shetland, rare; Plymouth; Galway, common; Belfast; the Hebrides; Moray Firth; Isle of Man; Hastings; and the Cornish coast. So that it is very generally distributed.

The ova of this species present no particular feature; they are exuded about June, and are of the usual orange colour, becoming darker as the development of the enclosed zœa proceeds.

The carapace being thick, and the size of the animal small, specimens may be dried without disarticulation, provided care be taken to keep them from the light of the sun or from too much heat.

(To be continued.)

OCCASIONAL NOTES.

THE MARTEN IN NORTH WALES.—The Marten seems so nearly extinct in many parts of the British Islands that its occurrence anywhere at a recent date is of interest. I therefore think it worth while to say that when on a driving tour in North Wales last June, I was stopping at the hotel at Bethgelert ('The Goat') for a few days, both on my way out and back. On the staircase were two stuffed Martens, which I was told had been killed near that place about five or six years before—perhaps the first might have been killed as much as seven years before I was there—but I could not arrive at the exact dates; one of them certainly looked as if it had been in its case some considerable time longer than the other. On making enquiries about these two, I was shown another, which had all the appearance of being a much more recent specimen than either of the others. This one I was informed had been killed about two years before, probably towards the end of 1879; but, as in the case of the other two, I could not get the exact date. One having been killed so recently as a year and a half or two years ago makes it very probable that the Marten is not yet extinct in North Wales. I do not remember any record of these two Martens, so think it quite worth while to send you this note of an animal which is probably on the verge of becoming extinct.—CECIL SMITH (Lydeard House, Taunton).

THE YOUNG OF THE PINE MARTEN.—With reference to Mr. Cocks' note (p. 333) I wish to withdraw my words, "never more than three," which were too hastily written. Although three is the usual number, I have known occasionally of four, and in one instance of five. I hope soon to have collected sufficient statistics for a short paper on the Pine Marten in Cumberland.—CHARLES A. PARKER (Gosforth, Cumberland).

MUS ALEXANDRINUS AT NORWICH.—A rat of this species was killed on board a wherry delivering maize at one of the wharves in Norwich, on the 13th August last. It is not unlikely this species is occasionally brought in grain-laden vessels from the Mediterranean ports, and, as in the present instance, mistaken for *Mus rattus*.—T. SOUTHWELL (Norwich).

[For some remarks on the occurrence of *Mus alexandrinus* in other parts of England, see 'Zoologist,' 1860, p. 7232, and 1878, p. 388. There is some ground for believing that this animal and the Black Rat, *Mus rattus*, are merely geographical races of one species, and that *Mus alexandrinus* is the oldest or parent breed. See Bell, 'British Quadrupeds,' 2nd ed., p. 306.—ED.]

BOTTLE-NOSED DOLPHIN IN THE COLNE.—On Sept. 5th a large porpoise was seen in shallow water near Brightlingsea, and was soon captured, after receiving, at a short range, a charge of shot just above and behind the left fin.

On inspection I find it answers to the description of *Delphinus tursio*. It is a female about nine feet long, and has twenty-three teeth in the upper jaw and twenty-one in the lower; they are more pointed than usual, and I therefore judge it to be a young specimen. A few years since I saw a larger one, also a female, that was caught off Harwich. I had an opportunity of examining the stomach of this specimen; it was empty, except that it contained many otoliths of cod and haddock.—HENRY LAVER (Colchester).

WHITE-BEAKED DOLPHIN AT YARMOUTH.—A very juvenile individual of this species, *Delphinus albirostris*, was landed at Yarmouth on the 10th September last; it was taken in the nets of a fishing-vessel about forty miles off the Norfolk coast. Its captors say that it died almost immediately upon striking the net, and that its mother which accompanied it swam round and round the boat for two hours, occasionally leaping quite out of the water in evident distress at the loss of its little one. In outline and coloration it very closely resembled Mr. Clark's figure (Proc. Zool. Soc., 1876, p. 679). Appearances indicated that at the time of its capture it had not long enjoyed a separate existence.—T. SOUTHWELL (Norwich).

SUPPOSED OCCURRENCE OF THE SOOTY SHEARWATER OFF CORK HARBOUR.—When in Dublin last July, my friend Mr. A. G. More showed me the specimen of the Sooty Shearwater (*Puffinus griseus*) that was shot off the Skelligs, on the Kerry coast, some years ago, and the occurrence of which he has recorded in the August number of 'The Zoologist.' While examining the bird, I was much struck with the sooty colour which extends all over the under parts, and it only then occurred to me that the two birds seen by me off Cork Harbour in August, 1849, and mentioned by Thompson in his 'Birds of Ireland' (vol. iii. p. 409), were of this species, and not the Greater Shearwater, as I thought at the time, and mentioned to him. He refers to the occurrence as follows:—"On the 24th of August, 1849, Mr. R. Warren, jun., when hake-fishing on the Maide, about three miles off Cork Harbour, saw two of the Greater Shearwater, which he remarked were easily distinguished from the *Puffinus anglorum* (of which numbers were seen on the same day) by their larger size and darker colour." These two birds appeared amongst the Common Shearwaters that were flying about amongst the fishing-boats at anchor, and frequently passed near our yacht, but not within shot, though the other Shearwaters came so close that I shot two fine specimens. When flying together the striking contrast of size and colour between the two species was very marked, the neat looking black and white plumage of *P. anglorum* contrasting favourably with the dark plumage of their dingy looking companions; and now when looking at an immature specimen of the Greater Shearwater (that I obtained some years ago on the

Mayo coast), seeing its brownish black and light-coloured under parts, scarcely a doubt remains on my mind that the two birds seen in August, 1849, were specimens of the rarer *Puffinus griseus*.—ROBERT WARREN (Moyview, Ballina).

RAVENS BREEDING IN CAPTIVITY.—The following is from a recent number of 'The Bazaar':—"It may be interesting to some of your readers to know that the Raven will breed in a domestic state. I have a fine young pair, which were hatched in March last, from a pair of old birds in possession of a gipsy, who has bred them from domesticated birds for the last ten years. They reared six young this season. He tells me that the hen makes her nest in an old box, and that the cock bird takes his turn on the nest. He lets the birds out in his yard at breeding time.—ELLIS S. HARRIS." The fact of Ravens breeding thus freely in confinement must, I think, be of unusual occurrence, but perhaps the experiment has not often been tried. Some years since I had a tame Raven which had his—or her, for I believe it to have been a hen—full liberty with uncut wings. This bird did not stray far from home; but, strange as it may appear, a second Raven was one day seen for some time hovering over the house. Ravens are now very scarce in this strictly preserved district, only an occasional straggler being seen or heard of; therefore this stranger must, in all probability, have come from a great distance, confirming the well-known vast powers of sight as well as of flight possessed by these birds, their range of vision being of course very much increased by the great elevation at which they soar. Ravens were formerly occasionally found breeding in this county, and within four or five miles of this place is a tree upon which a pair annually reared their young, and which was, I believe, carefully protected by the proprietor; but now, *tempora mutantur*, and Ravens, Crows, Magpies, Hawks, &c., are considered as vermin. Some young Ravens were many years ago taken from a nest at Gedgrave, near Orford, and conveyed to Leiston Abbey, a distance of not less than thirteen or fourteen miles, but the old birds, notwithstanding the distance, discovered and fed them. — G. T. ROSE (Leiston, Suffolk).

ORNITHOLOGICAL NOTES FROM THE ISLE OF WIGHT.—Since recording the occurrence last November of two Thick-knee Plovers in the Island (p. 260), I have heard of another being shot on the Nunwell estate, near Brading. Mr. Dimmick, the Ryde taxidermist, had a Pied Flycatcher, killed in the neighbourhood, brought to him in April; this being the second instance of its occurrence brought to my knowledge within a few years, it cannot be so rare a visitant to the Island as was supposed by Yarrell, who states that "Mr. Blyth had seen a specimen that was shot in the Isle of Wight." Having lately been asked to identify a bird shot near Ryde in January, 1880, it proved to be a female Black Redstart. The following

wildfowl were shot on the Solent last winter:—The Egyptian Goose, the Bean Goose, two female Mergansers, and three Shieldrakes. A Grey Phalarope was also procured near Ryde. I have been informed by Mr. Dimmick that a Peregrine Falcon was shot some time ago at Rowlands, a farm in East Medina, when making a stoop at a Pigeon set up as a lure. A few weeks since a Carrier Pigeon alighted on a dovecot in the town; inscribed on the inner web of a pure white feather of each wing is the following direction, clearly printed:—"Southern Counties Club, No. 243. Young." Few Swallows have been seen in the Undercliff this season, and they were late in appearing; one only observed up to April 28th. Martins, though late in arriving, are abundant. Nightingales have been plentiful; first heard on April 12th. Native songsters rarely met with, few having survived the severe winter. Mr. Rogers, naturalist, tells me that birds of the following species nested this summer in the Freshwater cliffs:—Peregrine Falcon, Raven, Shag, and Cormorant, besides the usual Gulls and other sea-fowl.—H. HADFIELD (High Cliff, Ventnor, Isle of Wight).

JAY FEEDING ON OAK-GALLS.—I have been interested at seeing in 'The Zoologist' Mr. Frank Norgate's valuable contribution entitled "Notes on the Food of Birds" (pp. 321, 322). Amongst the varied articles mentioned he does not name one certainly fed on by some of our birds, *viz.*, oak-galls. Many years ago a relative who was a sportsman killed, to my regret, near Egg Buckland, Devon, some young Jays that had recently left the nest, when I found that the parent birds had been feeding them with the small round, semi-translucent galls so common on the leaves of the oak, but of the scientific name of which I am ignorant. Comparatively recently an instance of a bird having fed on another kind, also met with on the oak, was brought under my notice. The gall in this case was the very different one, with flat sides, commonly known as the "oak-spangle." Of these my brother found a great number in the crop of a Water Rail shot by a friend in the neighbourhood of Launceston, Cornwall.—T. R. ARCHER BRIGGS (Richmond Villa, Plymouth).

CHOUGH IN OXFORDSHIRE.—On the 8th of April last I examined a specimen of the Chough at our village birdstuffer's. It appears to be not fully matured, the legs being a reddish orange and the bill yellow; the latter seemed unusually short. On dissection I found it to be a female. The bird was in very good condition; the stomach contained the remains of several small beetles and one caterpillar entire, about an inch long. It was killed in Broughton Park, probably the same day that I saw it. This is, I believe, the first occurrence of the bird in the district, and I have no other record of its having been obtained in Oxfordshire.—OLIVER V. APLIN (Bodicote, Oxon).

[Possibly an Alpine Chough escaped from confinement.—ED.]

NOTES FROM THE FARNE ISLANDS.—In one of my Migration Schedules received from the Inner Farne Lighthouse (September 3rd), that excellent observer, Mr. Thomas H. Cutting, communicates, amongst many others, the following interesting notes:—A white Petrel was seen by several of the fishermen swimming near the island in the early part of March. The King Eider was seen again in the latter part of April, and was about the islands for two months; it was seen by Mr. Cutting on June 19th. A pure white Guillemot was seen several times in the months of June and July. Several pairs of Roseate Terns have bred on the islands this year. The Sandwich Tern first arrived on May 6th, the Arctic Terns on the 9th; they left again, almost to a bird, on August 21st. Several of the latter were seen again fishing near the island on the 26th.—JOHN CORDEAUX (Great Cotes, Ulceby).

ON THE ACCLIMATISATION OF THE EUROPEAN QUAIL IN NORTH AMERICA.—I lately saw a paragraph in an American newspaper to the effect that Quails imported from Messina had been successfully acclimatised in the state of Maine, but retained their migratory habits, going south in the autumn and returning to Maine in the spring. Can any correspondent of 'The Zoologist' supply additional information on this subject? I know no other instance of the artificial acclimatisation of a migratory species.—J. H. GURNEY (Northrepps Hall, Norwich).

SNOW BUNTING NESTING IN SHETLAND.—A Snow Bunting's nest with three eggs was found by a boy, on the 10th August last, in the island of Yell. The nest was built at the side of a corn-field in a tuft of docks and rank long grass; it is composed of coarse grass, lined with hair. The mother allowed herself to be taken rather than quit her charge, but the boy who took the nest was humane enough to give the poor bird her liberty. The eggs are in my collection, and any readers of 'The Zoologist' interested in Ornithology who may chance to visit Lerwick can see and examine the specimens.—J. T. GARRIOCK (Prospect House, Lerwick).

FOOD OF THE RING DOVE.—In addition to the varieties of food of the Ring Dove given by Mr. F. Norgate, in his "Notes on the Food of Birds" (p. 324), may be added the flowers of the charlock (*Sinapis arvensis*), unripe seeds of the cow-parsnep (*Heracleum sphondylium*), fruit of the wild rose and sweet-briar, turnip-seed picked from the freshly-sown drills, and gooseberries of all kinds, though the yellows are the favourites.—ROBERT WARREN (Moyview, Ballina).

GARGANEY AND SPOTTED REDSHANK IN CORNWALL.—There was shot on 8th inst., west of Penzance, a Garganey Duck, in the first year's plumage; and in the course of the week I procured from a game-dealer here a Dusky Redshank. Mr. W. H. Vingoe, of this place, saw both of these birds, and confirmed my identification of them.—T. CORNISH (Penzance).

LATE STAY OF SWIFTS.—Swifts have stayed very late with us this year. There were three nests, and I think four, or perhaps five, contained young in September, for I heard the young twittering when the old ones flew into the nests on September 3rd. I think they took their departure on the 5th. There were a good many flying about very busy, but to-day (the 6th) I have not seen one. I think it almost certain that they have hatched twice this year.—W. PURNELL (Henley-on-Thames).

THE PALMATED NEWT IN KIRKCUDBRIGHTSHIRE.—On the 2nd July last, when ascending Cairnsmore of Fleet, I was agreeably surprised to find the Palmated Newt (*Triton palmatus*, Dum. et Bib.) in abundance in a few bog-holes near the summit, at an elevation of over 2000 feet. I did not find them lower down the mountain, nor do I know of any other locality in this county where they occur. The holes in which I found them were quite shallow, and almost filled up with *Sphagnum* moss, through which the Newts had great difficulty in making their way. Compared with other species, these Newts appeared to me to be much more sluggish, and I had no difficulty in capturing as many as I wanted with my hand.—ROBERT SERVICE (Maxwelltown, Dumfries, N. B.).

ADDITIONS TO THE BRITISH FISH FAUNA.—In the exceedingly useful handbook of the 'Vertebrate Fauna of Yorkshire,' recently published, is a list of the British fish fauna, compiled from the most reliable and satisfactory authority. To this I should like to add the names of a few more species which have fallen under my observation:—

Gobius pictus, Malm. Mr. Alfred Walker, of Cherton, sent me a beautiful example which he had captured in Colwyn Bay, Wales, some years since.

Crystallogobius Nilssonii. In May, 1868, Mr. Edward, of Banff, obtained an example, which is referred to in the 'Life of a Scotch Naturalist,' pp. 375, 427. Having applied to Mr. Edward, he has been so obliging as to lend me his specimen, a fine male, which I have figured for my next number of 'British Fishes.'

Coregonus oxyrhynchus. In the Proc. Zool. Soc., 1877, p. 419, I noticed a British example. In March, 1880, I received from the late Mr. Frank Buckland one taken at Chichester, which was recorded at the time; as was also another in February, this year, from the Medway.

Mr. Gill considered a fish received from the West Indies, and named *Euoxymentopon taniatus*, to be identical with Hoy's fish, captured in 1812 off the coast of Scotland—a conclusion also arrived at by Dr. Günther

(‘Introduction to the Study of Fishes,’ p. 435); whether following Gill or not does not appear. The editors have most correctly omitted this from their list, it being founded entirely on error. *Euoxymetopon taniatus* with a smooth abdomen, no ventral, a perceptible anal and well-developed caudal fin, cannot be identified with a fish described as twelve feet nine inches long, no ventral (broken off) or anal, and no caudal; “but the thin edge of the belly was closely muricated with small hard points, which, although scarcely visible through the skin, was very plainly felt all along it.” Hoy’s fish most unquestionably was Banks’s Oar-fish, *Regalecus Banksii*, which has longitudinal bands of colour, also observed in the West Indian *Euoxymetopon*.—FRANCIS DAY (Kenilworth House, Pittville, Cheltenham).

PORBEAGLE SHARK OFF PLYMOUTH.—On August 20th a small Porbeagle Shark, *Squalus cornubicus*, measuring three feet six inches in length, was caught off Plymouth with a hook and line, and brought to Mr. Hearder. On opening its stomach he found among its contents five large whiting-hooks, and three silver “spinners,” two of the latter, strange to say, being marked with his own name, the third having no mark at all. The jaws of this fish were nicely prepared, and presented to Mr. Francis Day, who happened to be visiting Plymouth at the time of its capture.—JOHN GATCOMBE (55, Durnford Street, Stonehouse, Plymouth).

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

ENTOMOLOGICAL SOCIETY OF LONDON.

August 3, 1881.—R. MELDOLA, Esq., F.C.S., &c., Vice-President, in the chair.

Miss E. A. Ormerod exhibited numerous specimens of Coleoptera and Hemiptera, in spirits, which had been collected by Mr. Bairstow in the neighbourhood of Uitenhage and Port Elizabeth, South Africa.

Mr. A. H. Swinton communicated some observations on *Iodis vernaria*, of which the following is an abstract:—This species is common on the Surrey Hills, and when in repose its wings hang limp and roof-shaped, with their exterior extremity rising above the head like a crest. This arrangement allows great vertical play to the abdomen, and much facilitates oviposition. On opening a box containing a living female, Mr. Swinton was surprised to perceive a most sickly smell of honey, resembling the scent of clematis blossoms (on which plant the larva feeds), but more pungent. He also observed small minute columns of emerald-green, attached here and there, which proved to be eggs, shaped like draughtmen, and piled up one on the top of another, in a slight curve, to the number of twelve or fifteen. The odour appeared to arise from the substance by which the eggs were

agglutinated together. The moth flies at early dusk, and rests amongst the clematis during the day. Specimens of the moth and eggs were exhibited in illustration.

Mr. E. A. Fitch exhibited an ear of wheat on which were between fifty and sixty skins of *Siphonophora granaria*, all of which, without exception, had produced an *Allotria* or *Aphidius*. He also remarked that from his observations in one particular field he should think quite 90 per cent. of the Aphides, which were numerous, were infested with these parasites.

Prof. Westwood communicated the "Description of a new genus of Hymenopterous insects" (*Dyscolestes canus*). The species, which is from Chili, is of somewhat doubtful affinities, but was thought to be an aberrant form of the *Formicidæ* or *Scoliidæ*.

Mr. A. G. Butler communicated a continuation of his "Descriptions of new genera and species of Heterocerous Lepidoptera from Japan," the descriptions of fifty *Geometrae* being included in the present paper.

Mr. R. Trimen communicated a memoir "On some new species of *Rhopalocera* from Southern Africa," six new species being described, from the extra-tropical region of South Africa.

Mr. C. O. Waterhouse communicated some "Descriptions of new Longicorn Coleoptera from India, Japan, and Africa."

Mr. W. L. Distant read the "Descriptions of some new Neotropical *Pentatomidæ* and *Coreidæ*"; also the "Description of the female sex of *Morpho Adonis*, Cram." In the discussion on this last paper Mr. Meldola and Mr. Kirby made some remarks on the occurrence of dimorphism in the genus *Morpho*.

September 7, 1881.—H. T. STAINTON, Esq., F.R.S., &c., President, in the chair.

The Rev. A. E. Eaton exhibited a dried specimen of the nymph of a species of *Euthyplocia*, Etn., a genus of the *Ephemeridæ* known hitherto only in the adult condition.

Mr. E. A. Fitch exhibited a larva of *Zeuzera asculi*, from which many hundreds of a species of *Encyrtidæ* had emerged; these were also exhibited, and, considering their vast numbers from a single host, he thought it one of the most remarkable cases of parasitism that had come under his notice. The lepidopterous larva had been received from Miss R. M. Sotheby, of Eastbourne.

Mr. Fitch also exhibited many specimens of *Drosophila cellaris*, with their pupa-cases; these flies had been bred in a bottle of "Piccalilli" pickle, and were received from Mr. Charles Foran, of Eastbourne, with the following history:—"About three weeks since a bottle of Piccalilli pickles was opened, and a number of small white maggots were found feeding on every piece of pickle, which consisted mostly of cauliflower and cucumber,

thoroughly saturated with vinegar, mustard, &c.; these larvæ afterwards pupated on the cork, and from these pupæ the enclosed flies were bred." Mr. Fitch remarked that when this fly was exhibited at a previous meeting he thought a very ungenial habitat was assigned to it (Proc. Ent. Soc. Lond. 1877, p. xv; August, 1877), but one of which this exhibition was quite confirmatory.

Mr. Fitch also exhibited the following galls:—

(1) Galls of *Cecidomyia foliorum*, H. Loew, a species new to Britain, found near Grays, Essex, on 14th May last. These were small reddish galls on the leaves of *Artemisia vulgaris*.

(2) Galls of *Cecidomyia*? n. s., which were greatly enlarged flowers of *Galium Mollugo*, found at Dorking on 16th July last. Dr. Franz Löw found similar galls in Upper Austria, tenanted both by a *Cecidomyia* and a *Diplosis* larva, neither of which were identified, as the gall gnats were not bred (cf. Verh. z.-b. Ges. Wien. xxvii. p. 35).

(3) Galls of *Cecidomyia*? n. s. (*thalictri*, H. Loew), on the flowers and seeds of *Thalictrum minus* (*flexuosum*, Bab. Man.), found in some numbers a day or two ago by Dr. Power in Perthshire. Dr. Boswell had remarked that these galls were not uncommon on the *Thalictrum*, when growing inland, but curiously he could never find them on plants by the sea-side. The imago is unknown, but for a notice of the gall see Loew's Dipt. Beit. pt. iv. p. 30.

(4) A large woody gall on whitethorn picked that morning at Maldon, which Mr. Fitch considered to be quite new. It bore some resemblance to the woody sawfly gall of *Cecidomyia salicis*, Schrank, specimens of which were exhibited for comparison.

Mr. Fitch likewise exhibited the extraordinary monstrous pupa of *Bombyx mori* referred to in this month's 'Entomologist' (Entom. xiv. 193), and read some remarks from Mr. E. Kay-Robinson, who had reared the specimen. Messrs. Stainton, Eaton, Waterhouse, and others made some remarks on the exhibit, but no satisfactory explanation of the apparent monstrosity was forthcoming. Also some stems of *Equisetum limosum*, in which the larvæ of *Dolerus palustris*, Klg., were feeding; this being of peculiar interest from the facts that no other insect was known to feed on *Equisetum*, and the economy of but one species of *Dolerus* (*D. hamatodes*, Schk.) was previously known, although there are about sixty European species, many of which are amongst our commonest sawflies.

Mr. T. R. Billups exhibited the following six species of *Ichneumonidae*, new to Britain, which he had taken this year:—*Pezomachus geochares*, Först., captured at Deal on April 18th; *Pezomachus xylochophilus*, Först., captured at Rainham, Essex, on July 11th; *Limneria litoralis*, Holmgr., captured at Woking, Surrey, on August 1st; *Monoblastus femoralis*, Holmgr., captured at Peckham on May 27th; *Lissonota linearis*,

Gr., captured at Weybridge on July 25; and *Lissonota anomala*, Holmgr., captured at West Wickham Wood on May 7th. The handsome *Pezomachus xylochophilus* had also been taken at Blundall, near Norwich, by Mr. Bridgman.

Mr. C. O. Waterhouse exhibited the larva of an *Æstrus* which had been taken from the side of a specimen of our common domestic mouse (*Mus musculus*), received from Peru, which was also exhibited. The *Æstrus* larva measured one inch by five lines broad at its widest part, and occupied almost the whole of one side of the mouse; when extracted its head was found towards the posterior legs of the mouse. Specimens of *Holochilus apicalis*, Peters, *Hesperomys caliginosus*, Tomes, and *Hesperomys olivaceus*, G. R. Waterh., all received in the same collection from Peru, were similarly attacked and one specimen of *Mus musculus* contained two larvæ of the *Æstrus*.

Mr. G. H. Verrall remarked that in Brauer's 'Monographie der *Æstriden*' there was no mention of any species living on the *Murida* (mice), but that in a later paper (Verh. z.-b. Ges. Wien. xiv. 891, pl. xxi. b) Brauer had referred to and figured a species of *Æstromyia*? whose larva had been found on a field mouse (*Arvicola arvalis*, Pallas), at Langenberg (Wurtemberg) by Prof. Hering, occupying quite a different position, however, to the specimen now exhibited.

Mr. H. T. Stainton exhibited two specimens of *Charæa graminis*, bred from the grass-feeding larvæ from Clitheroe by Mr. F. S. Mitchell, thus surely identifying the lepidopterous larvæ which occurred in such great numbers (cf. p. 349 ante). Mr. Fitch said *C. graminis* had also occurred as a "plague" in the Thuringian Forest this year, Herr Gutheil recording that from twenty-five to thirty specimens of the larvæ or pupæ were found to the square foot, making about seventy millions to the ninety acres affected (Ent. Nach. vii. 253).

Sir Sidney S. Saunders exhibited specimens of *Sarcophaga lineata*, Fall., another dipterous parasite on locusts in the Troad, whose larvæ, feeding internally on the adipose tissues of their victims, had powerfully contributed to clear a considerable tract of country from those which had escaped previous destruction in the egg by the *Callostoma*. Also specimens of *Chalcis minuta*, Fabr., which were bred from the *Sarcophaga* pupæ. The locust proved to be *Ædipoda cruciata*, Charp. several specimens of which were exhibited.

The President read a letter from the Colonial Office acknowledging the receipt of the report on the insect attacking locust-eggs in the Troad, and requesting that "Lord Kimberley's thanks be conveyed to the Society for this valuable report."

Mr. C. O. Waterhouse read the "Descriptions of some new Coleoptera from Sumatra." *Anomala* (*Spilota*?) *Curtisii* (*Rutelida*), *Macronota anceps*

(*Cetoniidæ*), and *Eutrachelus sumatrensis* (*Brenthidæ*), and exhibited specimens; also a specimen of *Clerota brahma*, Gestro, from Sumatra.

Mr. J. S. Baly communicated the "Descriptions of uncharacterized species of *Eumolpidæ*, with notices of some previously described insects belonging to the same family"; nineteen new species were described from various localities.

Mr. A. G. Butler communicated a "List of Butterflies collected in Chili by Thomas Edmonds, Esq." The very rich collection contained sixty-nine distinct species, and many interesting notes on the habits and history of the species were included.—E. A. FITCH, *Hon. Sec.*

NOTICES OF NEW BOOKS.

A Handbook of the Vertebrate Fauna of Yorkshire. By WILLIAM EAGLE CLARKE and WILLIAM DENISON ROEBUCK. 8vo, pp. 149. London: Lovell Reeve & Co. Leeds: R. Jackson. 1881.

ONE by one the counties of England are receiving the careful attention of naturalists residing within their limits, and it is our pleasing duty from time to time to notice the publication of the results of these investigations.

The latest addition to what may be termed "the *useful* Library of British Natural History," is the recently-published volume by Messrs. Clarke and Roebuck, the title of which is given above. Considering the area of the county, its physical aspect, and the large number of resident observers whose names have been for some time familiar to the readers of this Journal, it is not a little remarkable that Yorkshire has remained so long without a handbook of the kind now before us. That there was ample material for the purpose might be reasonably assumed; it needed only the energy and discrimination of some competent naturalist to collect and arrange it. This has now been done, and if the treatment of the subject, as it seems to us, be somewhat brief, it at all events bears the stamp of accuracy in its details, and has evidently been prepared with much care.

The introductory remarks on the physical aspect of Yorkshire are very instructive, and enable those who are but little acquainted with the county from personal exploration to form an excellent idea of its varied features. As some account is given

of its former aspect and condition, when a great portion of the county was either clothed with forest, or presented an interminable tract of wild and mountainous fell or rolling moorland, the reader is enabled to realise the changes which have taken place (through increased cultivation, the extension of railroads, and the springing up of manufacturing towns), not only in the outward appearance of many portions of the county, but also in the number and variety of the wild creatures inhabiting it, whose existence has been more or less affected by man's interference with their natural haunts.

A general summary of the Vertebrate Fauna of Yorkshire and of the British Isles shows that of 717 species recognised as British, 513 have been identified as occurring in Yorkshire and upon its coast, the majority of absentees consisting of about seventy of the rarer birds, twenty of the fresh-water, and eighty of the marine fishes. Extended observation and inquiry will no doubt tend to reduce the number of these absentees, and so render the proportion of Yorkshire Vertebrata, as compared with the total number of British species, much larger than has at present been ascertained.

Considering the present restricted range of the Wild Cat in Scotland, we were not prepared to learn that it was to be found in Yorkshire so late as 1840. Mr. Roebuck informs us that in the winter of that year the last Yorkshire specimen was trapped by Mr. John Harrison on his farm at Murton, near Hawaby. Other testimony confirms the opinion that the Hambleton Hills were the Wild Cat's latest haunt. There is no proof that it ever inhabited the Fells of the north-west, though in all probability it once existed there. The evidence of its former existence in South Yorkshire is confined to entries in the churchwardens' accounts at Ecclesfield of sums paid in 1589 and 1626 for the destruction of "wylde cattis;" and to a legend of doubtful origin of an encounter—fatal to both—between a Wild Cat and a man of the family of Cresacre at Barnborough.

The Marten, which was formerly abundant and generally distributed, is now extremely scarce in Yorkshire, and restricted to one or two localities.

The Badger has become very local, and much reduced in numbers; while the Polecat is said to be fast becoming extinct. The smaller mammalia seem to fare better, and it is satisfactory

to learn that that useful little creature, the Weasel, is allowed to be "universally distributed and abundant everywhere."

That tiniest of British quadrupeds, the Harvest Mouse, holds a place amongst Yorkshire Vertebrates, as does also the little-known Bank Vole, which is reported as occurring in a few scattered localities.

Early in the present century, it appears, Seals used to breed in numbers at the mouth of the Tees, and interfered to such an extent with the Salmon fishery that in 1802 determined measures were proposed for their extirpation. "There is no evidence," says Mr. Roebuck, "to show that their extermination was so effected, but it is hardly probable that they would long survive the rapid rise of the Cleveland iron trade and the shipping industries of Middlesborough, and in all likelihood the decade 1830 to 1840 would be that of the final extinction of the Seal as a permanent resident in Yorkshire, though solitary individuals have been observed to within the last twenty years."

Mr. Clarke has a very good account to render of the Birds of Yorkshire, and has rescued from oblivion many an interesting note of the capture or occurrence of some of the rarer species. As several of these records are printed for the first time, they will be the more acceptable to ornithologists. Nearly four pages are devoted to a history of the former existence in the county of the Great Bustard, which, having long ceased to be a resident in England, seemed to demand a more lengthy notice than could be well bestowed on other species.

Of the Reptilia, it appears that the Sand Lizard (*Lacerta agilis*) is absent from Yorkshire, or at least has not been observed there. This is the case also with the Smooth Snake (*Coronella lævis*), although the latter has been found much farther north in the neighbourhood of Dumfries. These two representatives of the orders *Lacertilia* and *Ophidia* affect similar haunts, and might well be looked for on the sandy heaths and extensive commons, where a light and dry soil would favour their existence. So far as we know at present, however, both species seem to be almost entirely confined to the southernmost counties of England. Amongst the Batrachians the Yorkshire list includes the three species of Newt; but *Rana esculenta*, the Edible Frog, is absent.

Out of fifty-three species of British Fresh-water Fishes, thirty-two have been identified as occurring in Yorkshire rivers

and streams; while the enumeration of 116 out of 196 marine species testifies to the assiduous inquiries and investigations which have been made by the authors in the preparation of their useful Handbook.

Report on the Migration of Birds in the Spring and Autumn of 1880. By JOHN A. HARVIE BROWN, JOHN CORDEAUX, and PHILIP M. C. KERMODE. 8vo, pp. 120. London: Sonnenschein & Allen. 1881.

It will be in the recollection of our readers that in 'The Zoologist' for May, 1880, Messrs. Harvie Brown and Cordeaux published their first Report on the results of a scheme which they had organised the previous year for eliciting reliable evidence from trustworthy observers on the coast concerning the arrival and departure of migratory birds. By means of printed forms of inquiry and letters of instructions addressed to the keepers of lighthouses and light-ships on the East and West Coasts of Scotland, and the East Coast of England, they obtained a series of interesting observations which, being properly grouped and arranged, were embodied in the Report referred to. During the year 1880 the scheme was continued, the field of their labours was enlarged, and they were fortunate in securing the co-operation of Mr. Philip M. C. Kermode, of Douglas, Isle of Man, who undertook the collection of statistics on the West Coast of England. The result of their combined labours has just appeared in the shape of an octavo pamphlet of 120 pages, entitled as above, and reflects the greatest credit upon its authors. The continuous correspondence which the collection of these statistics has evidently entailed, and the time which must have been expended in transcribing and arranging them; betokens an amount of industry which none but the most zealous workers in Ornithology would have cared to bestow. It is to be hoped that these efforts in the cause of science will be properly appreciated, and receive the support of ornithologists throughout the country, so that, by means of the statistics thus carefully collected and summarised, we may some day arrive at a satisfactory solution of the many interesting questions which affect the subject of the migration of birds.
